

SECTION 4

NONROAD MOBILE SOURCES

4.1 Introduction

Nonroad mobile sources are often included as nonpoint sources because of the number and size of the sources. Nonroad mobile sources include, but are not limited to, railroad locomotives, aircraft, commercial marine vessels, farm equipment, recreational boating, and lawn and garden equipment. Emissions estimates for these sources are based on source activity variables that are surrogate indicators of emissions.

The nonroad mobile emissions inventory was provided by STI. The inventory was developed NONROAD 2004, the EPA's approved emissions factor model for most off-road mobile sources. NONROAD 2004 was used to produce emission estimates at the parish level. EPA guidance documents were also consulted for emissions estimation methods for locomotives and commercial marine vessels (U.S. Environmental Protection Agency, 1999c, 1998b, 2000, 2003b, 1999a, 1997, 1992). Bottom-up activity data were gathered for recreational boats, locomotives, and commercial marine vessels (see Appendix H for the STI Report).

4.2 EPA Nonroad Mobile Model

Nonroad mobile emissions result from the combustion, evaporation, and spillage of fuel in equipment and vehicles designed primarily for off-road use; therefore, the composition of fuel and the ambient temperature for the period of time to be modeled must be defined. Other modeling parameters (Reid Vapor Pressure (RVP), sulfur, and oxygen content) depend on local fuel composition. There are technical documents available that demonstrate the nonroad engine growth estimates; calculation of age distribution (growth and scrappage); basic evaporative and crankcase emission rates; exhaust emission factors, nonroad engine population estimates, average life, annual activity and load factor values; seasonal and monthly activity allocation fractions and hydrocarbon conversion factors at the website: www.epa.gov/omswww/nonrdmdl.htm. The emissions summary for nonroad mobile emissions is presented at the end of this section in Table 4.3.

4.2-1 Aircraft

Aircraft emissions are divided into four categories: commercial, general, air taxi, and military. Activity data, as well as methodology for calculating emissions, have been well defined for commercial aircraft. Military, air taxi, and general aircraft emissions have been determined by an alternative, fleet-average procedure outlined in Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources (see Reference Table, #8).

Emissions from commercial aircraft can be calculated using engine data in the Federal Aviation Administration (FAA) Engine Emission Database (FAEED). FAEED is a computerized calculation procedure, which simplifies data management that was developed by the FAA with support from EPA. Engine information from commercial airports in the FAEED computer program along with input landing/takeoff cycles (LTOs) per aircraft type can be used to calculate emissions. However, emissions from this source were considered inconsequential by STI and not calculated.

4.2-2 Railroad Locomotive

Emission estimates were generated for Class I line haul, Class II and III line haul, and yard (or switching) locomotives using fuel consumption and traffic density. The activity data was obtained from individual railroads, federal agencies, and other sources.

4.2-3 Commercial Marine Vessels

The emission estimates in this section were provided by STI. STI generated emission estimates for commercial marine vessels operating in commercially active waterways, including inland river systems and the Gulf Intracoastal Waterway (GIWW). Parish level emissions were designated as either “in-port” or “underway”.

4.2-4 Recreational Boats

STI used NONROAD 2004 to calculate emissions for recreational boats. NONROAD 2004 produces parish-level emission estimates for several categories of recreational boats using national equipment populations which are disaggregated to the parish level on the basis of the total water surface area in a given parish. NONROAD 2004 also relies on broad assumptions

related to boating activity (such as annual hours of operation, engine load factors, and temporal variations in activity). These assumptions vary by equipment type but not by geographic area. The activity data files used by the NONROAD 2004 model were updated with information gathered through a bottom-up survey of representative groups of recreational boat owners. The survey was designed to gather data on vessel characteristics, hours of use, fuel consumption, engine loads, and temporal and geographic usage patterns. The data assembled through this survey were then incorporated in the NONROAD 2004 model, along with state specific data on temperatures and fuel characteristics.

4.3 Emissions Summary

The following table summarizes emissions from the nonroad mobile sources for the Baton Rouge Area. Appendix G includes specific information on nonroad mobile sources for the SCCs presented by STI.

**Table 4.3: 2002 Nonroad Mobile Source Emissions Summary
for the Baton Rouge Area in tons per year**

Parish	CO	NO_x	VOC
Ascension	3476.11	2776.79	307.98
E. Baton Rouge	26167.24	4604.64	1877.85
Iberville	1577.27	1973.34	198.60
Livingston	3222.52	452.24	454.22
W. Baton Rouge	9929.04	2603.94	2637.20
Total	44372.18	12410.95	5475.85